

## EUROPEAN PATENT OFFICE

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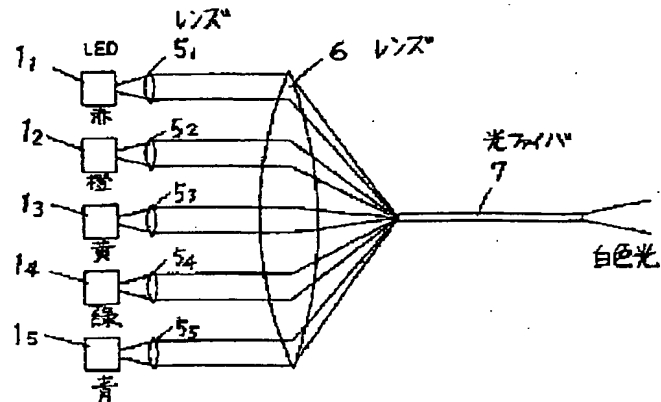
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TITLE : LIGHT SOURCE



ABSTRACT : PROBLEM TO BE SOLVED: To improve light utilization efficiency by condensing the light rays emitted from respective light emitting elements discretely as parallel beams, receiving the condensed beams and shutting off the outer beams with an aperture.

SOLUTION: The divergent beams from respective LEDs 1<sub>1</sub> to 1<sub>5</sub> are paralleled to the parallel beams by lenses 5<sub>1</sub> to 5<sub>5</sub> and are in succession condensed by a lens 6 to one point (one spot). This light spot is made incident on the end face of an optical fiber 7 arranged in this condensing position. The exit light of the optical fiber 7 is made white by adjusting the powers of the respective LEDs 1<sub>1</sub> to 5. Since the LEDs themselves are not spot light sources, the true parallel beams are not obtainable even if the beams thereof are passed through the lenses 5<sub>1</sub> to 5<sub>5</sub> but the Fourier transform image thereof is formed in the condensing part and, therefore, the distortions of higher order are made removable and the exit light from the optical fiber 7 is the good-quality light source which may be handled nearly as the spot light source. As a result, the light utilization efficiency is easily enhanced without using the optical coupler and the many optical fibers.

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